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THE DEVELOPMENT AND MARKETING OF A SOY-FORTIFIED BREAD IN KOREA: A CASE STUDY

TEXAS AGRICULTURAL MARKET RESEARCH & DEVELOPMENT CENTER

in cooperation with the
DEPARTMENT OF AGRICULTURAL ECONOMICS

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PREFACE

In 1976 the Market Research and Development Center at Texas A&M University undertook a cooperative program with the Nutrition and Agribusiness Group, Office of International Cooperation and Development of the United States Department of Agriculture. The purpose of this program was to assist in the design and evaluation of food marketing programs related to nutrition intervention projects in developing countries. More specifically the focus was on intervention efforts involving the commercial marketing of nutritionally improved food products aimed at particular at-risk target populations in these selected developing countries.

This publication reports on the first of the projects undertaken, the development and market testing of a soy-fortified bread product in South Korea. It is an overview of the entire effort and a review of the specific development activities, market research procedures and findings and the conclusions which may be drawn from the project. Other reports of the groups which conducted the specific market research activities are listed in the references and may be consulted for more detail.

It is anticipated that this report will be useful to readers who wish to review the specific project as well as those who may be interested in the general design and approach to consumer and market testing of a product such as this in a developing country. For this reason the logic and organization of the research design and procedures are reviewed in addition to the presentation of the results of the project activities and the conclusions drawn from them.

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REPORT HIGHLIGHTS

-- The Agency for International Development (AID) in conjunction with the U.S. Department of Agriculture (USDA) initiated programs in Korea in 1974 to assist in the development and marketing of low-cost nutritionally improved foods and in the demonstration of the commercial implementation of protein fortification technology. This report summarizes the objectives, procedures and results of the part of those programs dealing with a soy fortified bread developed and market-tested by the Sam Lip Foods Company, Ltd.

-- The goal of the programs was to demonstrate the technical and economic feasibility of manufacturing and marketing a protein fortified low-cost bread product which might result in an improvement in the nutritional status of the people. To achieve this the objectives were to utilize commercial protein fortification technology and successfully introduce into the market place a soy fortified bread product competitive in quality and price with regular bread.

-- Product development was carried out by Sam Lip Foods with technical assistance supplied by USDA. The development included the transfer of soy fortification technology and formulation modification to accommodate changes in the protein content of the available wheat flour. Based on the results of laboratory evaluations and limited consumer acceptance tests, it was concluded that a soy fortified bread could be produced which was comparable in quality and cost with the Sam Lip Foods regular bread.

-- A survey of bread consuming households in Seoul, Korea, was conducted. It was found that bread users were more likely to be in college educated,

upper class families, housewives aged 30 to 39 with a western style kitchen. Bread consumption was found to be of fairly recent origin in a majority of households.

-- A test market was set up in selected areas of Seoul, Korea. The soy fortified bread was produced and distributed by Sam Lip through company distribution channels. Government retail price controls on bread influenced the Sam Lip Company to examine a price level for soy fortified bread higher than that for regular bread. To accommodate this concern a three level pricing experiment was set up. Regular bread was marketed at 95 won (w) in all three matched market areas. Soy fortified bread was priced at three levels; w 95, w 140, and w 180. Other marketing variables were held constant.

-- Sales records were maintained for the test market areas covering approximately 80 retail outlets over a two month period. A survey of 247 soy fortified bread purchasers was conducted to obtain evaluations of the product.

-- Sales data indicated that soy fortified bread sales per store-day averaged slightly more than regular bread when priced the same. When soy fortified bread was priced higher its sales level was considerably diminished to the point that many stores in the "high price" test area discontinued stocking the product during the later stages of the test. When priced the same as regular bread, 20-25 percent of the bread units sold were soy fortified bread. When priced at w 140, sales of soy fortified bread were 3 to 13 percent of the total and where priced at w 180, soy fortified bread accounted for 1 to 9 percent.

-- Consumer evaluation of soy fortified bread quality attributes indicated relatively low ratings, particularly with reference to taste or flavor.

Nearly 50 percent of those purchasing soy fortified bread at least once rated its flavor as "poor" or "very poor". Survey results also revealed that consumers considered "taste" as the primary factor in determining which brand or type of bread to buy. Forty-five percent of the respondents bought soy fortified bread only one time while only 20 percent purchased it more than four times.

-- Promotion efforts were limited to in-store activities since the market test was not being conducted over the entire market area. A lack of concerted, continuous sales merchandising and advertising was cited as a significant factor in the failure to achieve better sales at the higher prices.

-- Sales promotion efforts were redesigned and a market-wide product launch was undertaken by the Company. Soy fortified bread was priced at ₩ 160 which they felt was necessary to recover all costs. A sales level of 11 to 12 percent of total bread units sold was maintained during the first two months of market-side distribution. A decline in sales was observed beginning in the third month which coincided with a discontinuation of Company advertising programs.

-- The goal of the project was achieved in that commercial protein fortification technology was successfully applied to produce a product with cost and quality characteristics comparable to the generally available regular bread. When priced at a comparable level it outsold the regular bread in the test market.

-- When priced substantially above regular bread continued sales success was not achieved. This failure was traced to problems of poor flavor and inadequate promotion which, when combined with higher price, deterred consumers from regular purchase and use.

-- The problem with flavor or taste of the soy fortified bread was not expected in light of positive results obtained in the earlier consumer taste tests conducted by the Company. This discrepancy was traced to a change in the quality of soy flour used in the bread for the test market compared to that used in the earlier consumer acceptance tests.

INTRODUCTION

The Office of Nutrition of the Agency for International Development (AID) in conjunction with the U.S. Department of Agriculture, initiated a program in 1974 for the conduct of a series of bread demonstration projects which were to implement the newly developed soy fortification technology in programs for the market introduction of soy fortified bread. The rationale for the bread demonstration projects was that protein fortification technology could be valuable in alleviating protein malnutrition, if it could be implemented in developing countries where low-cost, nutritionally improved bread products would be produced and distributed through commercial channels on a nationwide basis. It remained to be demonstrated that protein fortified bread could be economically viable by being produced at no increase in cost over regular bread and thus require no higher selling price than comparable unfortified products. Successful completion of one or more demonstration projects would serve as a model for the introduction of soy fortified bread products in other developing countries.

Korea was evaluated as a possible site for a bread demonstration project on the basis of the rapid increase in bread consumption in the country. This increased consumption was due to a gain in popularity of bread as indicated by increased sales in the market and to a government program which required the increased use of bread by restaurants. The per capita consumption of wheat flour had increased three-fold between 1961 and 1974 and the percentage of flour used in the baking industry had nearly doubled in the previous decade to a level of about 20 percent of the flour consumed. With this rapid increase in bread consumption, it appeared

that bread had the potential of becoming a staple food in Korea in the near future even among the low income group. This significant increase in bread consumption was attributed to: (1) the availability of bread of a quality accepted by the people, and (2) the Korean government's program for controlling the price of bread to maintain a low price in the marketplace. This combination of factors was accelerating the acceptance and the change in consumption from rice to bread. It appeared that the introduction of high protein bread would result in its wide consumption by a significant portion of the population including the lower income and nutritionally needy segments and thus provide a good way to provide more and better quality protein to lower income families. In consideration of all of this, Korea was identified as a promising site for a bread demonstration project for the production and marketing of soy fortified bread. A bread baking company was needed as a cooperator for such a project.

Coincidental with the consideration of implementing a bread demonstration project in Korea, AID through the Korean Foods Industry Association was initiating a program in Korea for awarding grants to local food companies to assist them in the development and test marketing of low-cost nutritionally improved (high protein) foods. This activity was part of a three year program started by AID in 1972 to assist local food processing and marketing organizations in developing countries to carry out programs for the development of low-cost protein foods for their domestic markets. The program called for grants to be provided for preinvestment feasibility studies which were to include product testing, market analysis, and test marketing. The low-cost nutritionally improved foods to be developed as a result of this program were to be formulated from readily available raw

materials produced locally or from those soon to be locally produced. The anticipated nutritive impact of such products was expected to be small initially but over the long run the process of up-grading the nutritional level of local foods was expected to contribute to the solution of local malnutrition problems.

One of the companies who applied for consideration in the Grants Program was the Sam Lip Foods Company Ltd. who wished to study the feasibility of producing and marketing a soy fortified bread in the Korean market. The Company was selected from among several companies who had applied for the program because it adequately met the selection criteria of: (1) successful experience in the food industry, (2) access to sufficient capital to make the required investment if the feasibility study so indicated; (3) possession of established technology in food formulation to permit nutritious food concepts to be translated into practicable products, and (4) possession of management skills to interpret the market data and to implement programs.

The Sam Lip Foods Company Ltd. also was considered an excellent candidate as a cooperator for the bread demonstration project both because of its qualifications mentioned above in relation to the Grant Program and because it had a major position in the rapidly growing bread market, an excellent record of product development, extensive distribution channels and well-established advertising and marketing capabilities. A grant was awarded to Sam Lip and an agreement was reached with the Company that AID through USDA would provide the needed technical assistance and support for the transfer of soy fortification technology and for the marketing studies related to a bread demonstration project.

The following sections of this report describe the goals and objectives and various technical and marketing activities undertaken in connection with the bread demonstration project. The results obtained are reviewed and analyzed and conclusions drawn regarding the introduction and marketing of soy fortified bread in Korea.

GOALS AND OBJECTIVES

The goals of the combined activities of the Grant program and the bread demonstration project were:

1. The utilization of protein fortification technology for the commercial production of fortified bread acceptable to the consumers; and
2. Successful introduction into the marketplace of a soy fortified bread competitive in quality and price to unfortified bread.

The activities described in this report were carried out in phases in support of the objectives and included product modification, test market introduction, and market-wide distribution. Also carried out was a comprehensive bread survey to determine the buying and consumption habits of bread users in the general population. The results of that survey were coupled with data gathered from the test market introduction and used by Sam Lip Foods Company Ltd. to assist them in reaching their decision to proceed with the market-wide distribution phase.

PRODUCT MODIFICATION

The product modification phase involved the basic transfer of soy fortification technology, its application to sustained commercial production,

limited product acceptability testing, and resolution of formulation problems.

Technology Transfer

The soy flour fortification technology that was transferred and used in this project for the production of soy fortified bread (SFB) was developed in the United States by Kansas State University through the sponsorship of AID. Specific details on the development of this protein fortification technology and its various applications can be found in the scientific literature (10,12,13,14). Basically the technology as developed and used in Korea is based on (1) the addition of 12 parts of soy flour for each 100 parts of wheat flour used in the dough, (2) the inclusion of 0.5 part of the dough conditioner sodium stearoyl-2-lactylate (SSL) for each 100 parts of wheat flour, and (3) the use of additional water to accommodate the absorption requirement of the soy flour. The technology as developed requires the use of the SSL dough conditioner to strengthen and improve the dough properties to compensate for the deleterious effects that result from the addition of soy flour alone to a dough. The use of SSL allows the production of bread with acceptable quality when 12 parts of soy flour are added in the bread formula.

The soy flour used in the technology transfer baking tests and subsequently through all of the commercial production of SFB was food-grade, defatted, toasted soy flour produced in Korea by the Dong Bang Oil Company. It was of acceptable quality but not as light in color or as mild in odor as similar flours produced in the U.S. A sample of U.S. soy flour had been provided for initial demonstration purposes before the start of the technology transfer studies but the project was designed for and based on the use

of locally available soy flour. The selection of using domestically produced soy flour was based on two primary considerations (1) price and (2) ease and constancy of availability. The factor of price was quite important because as one of the objectives of the project was the production of a fortified bread that would be competitive in price to unfortified bread, it was necessary to retain a low manufacturing cost so the selling price of fortified bread would not be increased over that of regular bread.

The technology transfer involved two steps. The first consisted of experimental and pilot-scale baking tests to establish the functionality of soy fortification technology using local ingredients and the regular bread formulation. The results of these tests demonstrated the overall feasibility of the production of SFB with acceptable market quality as judged by baking technologists and Sam Lip officials. The second stage was the testing of the formulation and procedures in sustained commercial-scale production to ensure the ability to provide SFB of commercial quality on a continuing basis in the quantities needed to support a test market introduction and eventual market-wide distribution. This testing also was concluded satisfactorily.

The major complication that was experienced in the technology transfer activities was a change in policy by the Korean government which for awhile resulted in only low protein flour being available for the production of bread. This problem is reviewed later in more detail. Eventually medium quality flour was made available for use in bread production. This flour was not as high in protein content nor had the overall quality for bread production as the high protein (strong) flour originally available. A final series of commercial production trials was made in May 1976 to check

the quality of the SFB produced from medium strength flour before initiating the test market introduction of SFB. The final formula established for SFB is shown in Table I and is compared to the formula for regular bread.

All through the technology transfer baking activities, the SFB was judged and evaluated by Sam Lip personnel both for general bread quality per se, i.e., physical characteristics, odor, and flavor, and as regarded its being of commercial (market) quality by having typical bread quality attributes. The fortified bread produced as a result of these activities was considered to be of market quality and capable of receiving consumer acceptance.

As indicated earlier, the production costs and potential selling price of SFB were important factors in the project. Preliminary cost analysis calculations were made at different stages throughout the technology transfer phase. The analyses were based on a comparison of the ingredient costs between regular and fortified bread since the method of manufacture of each type of bread was essentially the same. The initial cost analysis showed SFB to be approximately 10 percent less than for regular bread. The latest cost analysis as shown in Table 1 shows SFB to be five percent higher. It should be pointed out that the product modification stage stretched over about one and one-half years and the prices of ingredients changed although not always increasing on every ingredient. For example, the cost of soy flour rose from 210 won to 240 won per kilogram while the cost of SSL declined from 1800 won down to 1650 won per kilogram. These variations in ingredient costs resulted in the production cost of SFB to range from -10 to +5 percent of that of regular bread.

Table 1. Final Formulation and Cost Analysis of Fortified Bread Used in Test Market

Ingredient	Price Won/kg.	Amount Used (Kg.)		Formula Cost (Won)	
		Regular	Fortified	Regular	Fortified
Flour	137	100.0	100.0	13,700	13.700
Yeast food	383	0.2	0.2	77	77
Yeast	280	3.0	3.0	840	840
Sugar	431	3.0	3.0	1,293	1,293
Glucose	270	2.0	2.0	540	540
Salt	45	2.0	2.0	90	90
MSG	800	0.2	0.2	160	160
Fat	431	2.0	2.0	862	862
Soy Flour	240	---	12.0	---	2,880
SSL	1,650	---	0.5	---	825
Water	---	60.0	72.0	---	---
TOTAL		172.4	196.9	17,562[1/]	21,267[2/]

[1/] Cost per Kg. of regular dough 102 won.

[2/] Cost per Kg. of fortified dough 107 won.

Acceptance Testing

In order to get a broader evaluation of the physical and organoleptic qualities of SFB in addition to the judging and evaluation of the SFB carried out by Sam Lip personnel, several taste and acceptance tests were conducted by the Company in order to measure the consumer acceptance of SFB.

One test involved seventy-one company employees representing all job types and levels but heavily weighted in the lower income positions. The results showed a generally favorable response to the fortified bread although differences in odor and texture were noted between the fortified bread and regular bread. Among those who regularly eat bread a willingness to buy the fortified bread was expressed if the price was the same as for regular bread.

A second acceptance test was carried out with 63 members of a Federation of Housewife's Club. Again a slight difference in odor was noted in the fortified bread but no serious defects were reported. Samples both of fortified and regular bread were supplied to Club members to be taken home and tried by the family. Follow-up telephone interviews reached only a small number of the participants but the general summary of the responses was that their families did not note a quality difference in the breads and in cases where difference was noted, it was not considered objectionable.

A third consumer acceptance test was carried out using the system of distributing both regular and fortified bread through the milk deliveryman and following-up to the participants with a questionnaire. Of 200 families contacted, 101 responses were obtained. The summary of these responses showed (1) a difference was noted between regular and fortified bread,

(2) the fortified bread was preferred on the basis of flavor which was the difference noted, and (3) the quality factors of color and texture were essentially equal between the two types of breads. In response to an inquiry about pricing, about 50 percent indicated an intent to buy fortified bread as long as the price was the same as for regular bread but reflected strong resistence to buying fortified bread if it were priced higher than regular bread.

In two of the three consumer acceptance tests responses expressed a willingness to purchase SFB if available "at the same price" as regular bread. Since as indicated earlier the "manufacturing cost" of fortified bread was no more than that of regular bread and might be lower, it appeared that the market price of fortified bread could be the same as that of regular bread and not need to be priced higher because of manufacturing costs. At this point, pricing did not appear to pose a problem in the consideration of marketing fortified bread.

The results of these tests were to indicate the degree of consumer acceptance for SFB of the quality expected to be supplied in the test market introduction and market-wide distribution. However, in the final project report recently issued by the Sam Lip Company titled "The Low-Cost Nutritious Bread Development Program" it is stated that the bread evaluated by the consumers in these tests was of better quality than that subsequently produced and used in the marketing activities since the test breads were made with the high protein (strong) flour and imported soy flour instead of domestic soy flour. (7) The reasons given were that the Company did not believe the prohibited importation of high protein wheat would be sustained and that the imported soy flour was of better quality than the locally

available flour. Similar tests were never repeated with SFB made from medium strength flour and domestic soy flour such as was actually used in the test market introduction.

The summary of the results of these consumer acceptance tests even as they were conducted indicated a general though not overwhelming acceptance to SFB. These results did not seem to cause concern to the Company management and based on these (favorable) results and on the optimistic view of the marketing prospects, the Company decided to move on to the test market introduction of soy fortified bread.

Modification for Low Protein Flour

Soy flour fortification technology was developed using, and was designed to be used with high protein (12-13 percent) flour with strong baking characteristics capable of producing bread of good quality. Flour of this quality was available and used in the early technology transfer stage of this project. However, a policy was adopted by the Government of Korea just before the scheduled start of the test market introduction in 1975 which prohibited the importation of wheats with more than 10 percent protein which in effect eliminated the availability of high protein flour for bread production. This policy presented new technical problems for the program regarding formulation and procedures since neither regular nor fortified bread generally are produced from flours with such low protein content or weak characteristics.

Baking rests were carried out to resolve the technical problems and adjustments were found which produced SFB with what was considered of acceptable quality in general and when compared to regular bread made from

the same flour. However these modifications were never implemented as the Korean government reversed the earlier policy and established a program for the importation of wheats which produce flours of medium (11.0 - 11.5 percent) protein content and baking characteristics. Medium strength flours were used to produce the breads for the test market introduction and market-wide distribution.

Summary of Product Modification

The results of the product modification phase included the successful transfer of the technology for the production of soy fortified bread and a demonstration of its feasibility and applicability for the commercial production of fortified bread. This was accomplished despite the highly unusual situation of having to use three flours of considerably varying qualities during the product modification phase. In addition, it was demonstrated that the production cost of SFB is essentially the same as that of regular bread which should allow the fortified bread to be placed in the market at a price equal to or competitive with that of regular unfortified bread.

The quality of the SFB was shown to be essentially the same as regular bread made from the same flour in regards to general bread characteristics and commercial (market) quality. These evaluations of quality and marketability were made by the technical and marketing personnel of the Company. Consumer acceptance results obtained for SFB of better quality than that eventually used in the test market was generally favorable and rated as acceptable. These evaluations produced a general impression regarding the quality, consumer acceptability and marketability of SFB which when coupled with an optimistic view of the marketing prospects led to the Company's decision to carry on with the test market introduction.

MARKET TESTING AND CONSUMER EVALUATIONS

Establishing the feasibility of introducing fortified bread requires both the technical studies and activities described in earlier sections of this report and an evaluation of the market for bread in general and the new product in particular. While it was known that bread consumption in Korea was increasing, little current data were available regarding the nature of bread purchasing and use by Korean consumers. Also undocumented were the characteristics of those households which account for the majority of bread consumption. In addition, the quality of the fortified bread, while judged to be of comparable quality in laboratory and limited consumer tests, needed to be evaluated in a more realistic market setting.

The activities undertaken to study the bread market and consumers' opinions regarding the fortified bread included both surveys and consumer evaluations of product quality. A general survey was conducted to identify basic bread usage patterns among households. In the test market phase sales were monitored to evaluate the level of sales which could be achieved. In conjunction with this, a sampling of fortified bread purchasers was obtained who then were questioned regarding their evaluations or acceptance of fortified bread based on product quality.

The purposes of the marketing studies were twofold: (1) to establish basic information about bread consumption in Korea and, (2) to evaluate the sales of fortified bread under market conditions and obtain opinions of representative consumers regarding the product. Procedures and results are discussed in the following sections. Only the highlights are presented here as the details are available in several reports relating to specific parts of the study (1,2,4,5,6). The final report submitted by Sam Lip Foods

Company provides an overview of the project from the Company's perspective (7). Presented here is the general approach used and sufficient detail on findings to permit the reader to understand the observations made and the conclusions reached which are discussed in later sections.

Procedures

Since the concept of selling fortified bread in Korea was the result of a unique set of circumstances as described above, some of the background market information which would normally provide a foundation for the product development stage was not readily available. The fact that bread is not a major food consumption item in Korea also contributed to this lack of data on the product, its market and its consumption. A two stage market research effort was organized consisting of several parts as noted below, part of which focused on obtaining important background information.

Stage I: Study of bread purchase and consumption patterns among a representative sample of households in the Seoul market.

Stage II: Market test and related studies of consumer acceptance.

- Part 1. Base line study of bread users in test market stores.
- Part 2. Evaluation of consumer opinion regarding fortified bread quality and related factors.
- Part 3: Collection and evaluation of sales results from test stores and market areas.
- Part 4: Evaluation of responses of consumers who were found to be "non-users".

Stage I: Bread Usage Survey

The purpose of this first study was to describe current bread usage patterns among a representative sample of households. This was designed to provide a base of information against which the usage of the fortified bread could be measured. A local commercial research firm was contracted to carry out this phase of the research.

The sample consisted of 750 households selected at random, using the method of multi-stage probability sampling. These households were selected to be representative of the 1,400,000 households in Seoul, Korea. The city of Seoul was to be used as the test market area because it represented the key consumption area for bread in the country and the area in which the fortified bread was to be marketed. Because of its size, the Seoul market was of paramount importance in the Sam Lip marketing strategy. Without success in Seoul, the Company could not justify marketing the product elsewhere in the country.

Housewives were interviewed on a personal, face-to-face basis, using a structured questionnaire. The questionnaire was designed to obtain information on most aspects of bread purchase, storage, serving and consumption in the household, including both qualitative and quantitative information and relationship of bread to other foods. Household classification questions were also included for the purpose of describing the relationship between levels of bread consumption and basic household characteristics such as socio-economic level or size.

This survey was conducted during the spring of 1976 and results made available during the summer. These results, since they were obtained from a representative sample of households in the market provided a check against the results of later surveys which were limited by the market test design

to only selected areas of the Seoul market.

Stage II: Market Test and Related Surveys

The critical test of any new product is its performance in the marketplace. Once a product has been evaluated by consumers in a taste panel setting and is judged to be acceptable, a test market may be designed to permit the evaluation of the product in a typical market setting. The product, its price, package, promotion program, distribution system and other marketing components may be evaluated in this way.

The market test for soy-fortified bread was designed and carried out after completion of product development activities and limited consumer acceptance tests had convinced bakery management that the product was sufficiently refined to proceed to this stage. The design and implementation of the market test and related evaluations of sales and consumer acceptance was contracted with the Research Institute for Economics and Business at Sogang University. The procedures and results are described in detail in a report entitled "A Study on the Demand and Market Development of Low Cost Nutritious Bread in Korea" by Whang and Jo (6). A brief description of these procedures is presented here.

Marketing Strategy and Establishing the Test Market: The Sam Lip Company is a consumer food products company emphasizing baked products, primarily bread, with national distribution in Korea. The Company's strategy in developing SFB was to add to their product line and to provide a nutritionally improved bread product to Korean consumers. Product development was discussed in an earlier section. Packaging was planned to complement their existing product line. Promotion consisted of in-store posters,

information handouts and free samples given out in the test stores (6, pp. 95-103). Mass media advertising could not be used because the product was not available in all the stores in the Seoul market.

The pricing decision was the most difficult to resolve in finalizing the test market strategy. An important consideration in the project was to determine if SFB would be purchased by households thought to be nutritionally at risk if the price were the same as regular bread. These households were hypothesized to have generally lower income and likely to be sensitive to the retail price of bread. Retail prices for many basic food items are government controlled in Korea including regular white bread. While a cost analysis indicated that SFB would be manufactured and consequently sold at approximately the same price as regular bread, the Sam Lip Company felt that the control price (₩ 95 per loaf) was too low to provide an adequate level of profit, and they had applied to the government for permission to raise it. (7) It was also recognized that pricing SFB above the comparable regular bread could have a negative impact on sales particularly among lower income households. Due to these circumstances a pricing experiment was designed in which three different retail prices would be tested, the lowest of which being equal to the current price of regular bread.

Another basic consideration in designing the test market was the importance of maintaining control over distribution. This is necessary both for efficiently gathering sales information and to permit better management of sales and promotion efforts. For these reasons tests areas were selected which coincided with the boundaries of existing sales territories.

The Sam Lip Bakery had 60 dealerships (sales territories) in the Seoul market. To maintain a manageable size and yet achieve some representativeness in the sample, eight of these were chosen as test markets. They were

selected to represent a full range of economic levels found in the market.

Four of the test market areas (dealerships) were assigned a price of ₩ 95 per loaf of SFB, one at ₩ 140 per loaf and the other at ₩ 180. The higher of these two (₩ 180) was the maximum price the government would permit while the ₩ 140 price represented a point about halfway between the other two. Care was exercised to match the dealerships assigned to the three price level groups according to socio-economic characteristics so that price would be the only major difference among the groups. The label weight of the loaf was 450 grams which was the minimum permitted by the government. In each store the SFB was displayed side-by-side with the small regular bread at ₩ 95 per loaf.

Within each of the eight test market areas, approximately 10 stores were selected to represent the area and provide a basis for sampling purchasers of bread and the soy-fortified bread. In most of the areas one or two larger "supermarket" types of stores were included. The final sample consisted of 84 stores.

Distribution of the SFB was handled through normal company channels from the bakery to dealer warehouses and from there by salesmen using small vehicles or bicycles to the designated retail stores. Dealers and salesmen were instructed to monitor product movement and try to maintain stock on the retail shelves at all times. Procedures included a policy for handling returned goods and for the distribution and placement of posters and handout materials in retail stores. The research team also monitored these activities to insure that instore promotion of the product was adequate.

Part 1. Survey of Bread Purchasers in Test Stores. One of the main objectives of the test market was to determine the level of sales that could

be achieved by SFB under normal market conditions. An equally important objective was to determine who the purchasers were and whether the bread was purchased by consumers who differed in any significant way from typical bread consumers. To achieve this second objective a survey of SFB purchasers was planned (Part 2 below). In order to have a sample of bread users from the same areas against which to compare, a survey of bread purchasers was conducted using the test market stores as a point of contact. The survey discussed above in Stage I was carried out as a means of validating, with a market wide representative sample, the information to be collected here.

This part of the study was conducted using a questionnaire which covered many of the aspects of bread purchase and consumption outlined for Stage I above. Interviews were conducted on a face-to-face basis in the retail store with persons who were observed to be bread purchasers. A total of 381 interviews were completed.

Part 2. Survey of Soy-Fortified Bread Purchasers. This was accomplished by using a two-step procedure involving identification of SFB purchasers in the store and then interviewing them at their homes after sufficient time had elapsed for them to use the product. Interviewers were stationed in the test stores at randomly assigned times to obtain the cooperation of persons observed to have freely made a decision to buy the SFB. The primary purpose was to obtain their cooperation for the follow-up interview. Interviewers then went to the purchaser's home at the agreed upon time with a questionnaire and evaluation form. Topics covered included basic bread purchase and consumption patterns, ways the SFB was used, household demographics, reasons for purchasing and an evaluation of quality of the bread on

several factors including flavor, texture, odor, and color. Of the 455 purchasers of SFB contacted in the stores, 247 completed interviews were obtained. These were fairly well distributed among the test market areas.

Part 3. Collection and Evaluation of Sales Results from Test Stores. Sales data from the test stores were collected by the bakery sales staff and compiled at the dealership level. Records were maintained for the four major bread items in the store; regular bread in both 400 and 800 gram loaves (priced at ₩ 95 and ₩ 190, respectively), milk bread in a 450 gram loaf (₩ 200) and the soy-fortified bread in a 450 gram loaf.

The test period was planned for a three to six month time period to allow the market to adjust. However, due both to plant production problems and sales problems, which will become apparent in the discussion of results (pp. 31-34), it lasted for a period of less than two months from July 8 through August 27 of 1976. Experimental designs in a test market such as this were not common in Korean marketing research. In fact, test markets were not usually conducted in any form (7). Because of the inexperience of personnel in implementing such a research effort many problems were encountered beyond those typically found. As a result, much variation in the sales data exists reflecting the effects of uncontrolled variables. Despite these problems, the data were found to be reasonably accurate and of sufficient quality to provide one basis for evaluation of the product.

Part 4. Survey of "Non-users". To complete the evaluation of the product it was considered important to examine the reasons why known bread users chose not to purchase the SFB. To accomplish this a survey was conducted using the list of bread purchasers obtained in the bread users survey (Part 1 above) as a basis for sampling. These households were each contacted

after SFB had been available for several weeks to determine if they had purchased it. If they had, they were included in the purchaser group and interviewed as in Part 2 above. Since market penetration was not expected to be high, it was anticipated that the majority of households contacted would be non-users. Those not purchasing the SFB were interviewed using a questionnaire which covered typical bread consumption habits, reasons for not purchasing and household demographics. A sample of 195 respondents, well distributed across all test market areas, was obtained.

Another evaluation was also attempted by using a follow-up mail survey to SFB purchasers interviewed earlier (Part 2 above). The purpose of this was to determine how many had discontinued usage and the reasons why. A limited response was obtained from this (87 completed interviews) and problems of availability of SFB in stores were being encountered by the time the survey was conducted. The results of this survey are therefore of limited value. This survey was conducted after the test market was completed and the marketwide introduction had occurred.

Results

Before reviewing the results of the consumer evaluations and market test it is appropriate to restate the basic questions which this phase of the project was designed to answer. With these in mind the discussion is then organized to provide a summary of those results which bear specifically on these questions.

A major area addressed in this research was "Who are the bread purchasers?" and as an extension of that "Are purchasers of soy-fortified bread different in any significant way from this general group of bread purchasers?"

The answers to these questions provide insight into the potential for reaching target populations with this nutritionally improved product.

A second major area of interest was to answer the question "What do consumers think of the SFB product?" The answer to this question regarding several facets of the product provides guidance to product development and marketing programs. This information also may help in interpreting the results of the test market.

A third major question of interest was "How well will this product sell under typical market conditions?" The results of the test market provide answers to this question which is of course a major measure of success or failure for the product. A fourth question, related to the consumer evaluations, was "What are the reasons why consumers discontinued purchasing SFB or chose not to purchase it at all?"

Characteristics of Bread Purchasers

General Bread Use: Bread use in Korea is of fairly recent origin and usage is still somewhat limited though apparently growing. While statistics on bread consumption are not readily available, data indicate that per capita consumption of wheat flour more than doubled from 1965 to 1975. Expenditures for bread did not grow significantly relative to total expenditures on food from 1971 to 1974. Most observers indicated prior to the study that bread consumption was growing but still limited to higher income households who maintained a western style kitchen and were convenience oriented.

In the general consumer survey (Stage I) it was found that 11 percent of the households in the Seoul market consumed bread more frequently than once per week, while 75 percent never used bread (Table 2). No comparable survey data could be found to provide an assessment of change over time in

Table 2. Characteristics of Bread Users in Seoul, Korea 1976.[1/]

		Heavy user[2/]	Light user[2/]	Non-user	Total
Housewife Age					
20 - 29	(N=115)	3%	10%	87%	100%
30 - 39	(N=230)	15	15	70	100
40 +	(N=255)	11	15	74	100
Education					
None & primary	(N=253)	5	8	87	100
Middle & high	(N=286)	14	18	68	100
College & over	(N= 61)	23	15	62	100
Socio-Economic Status					
Upper	(N= 78)	31	17	52	100
Middle	(N=152)	14	22	64	100
Lower	(N=370)	6	9	85	100
Occupation of Household Head					
Prof. & Mngr.	(N= 23)	17	13	70	100
Self-employed	(N= 33)	15	12	73	100
Cler. & skilled	(N=233)	15	13	72	100
Sales workers	(N=164)	9	19	72	100
Unskilled workers	(N= 88)	2	4	94	100
Unemployed	(N= 59)	8	14	78	100
Kitchen Structure					
Western style	(N=179)	21	14	65	100
Traditional style	(N=421)	7	13	80	100
Electric Oven					
Have	(N= 78)	26	21	53	100
Do not have	(N=522)	9	12	79	100
Toaster					
Have	(N= 98)	31	23	46	100
Do not have	(N=502)	7	12	81	100
Total	(N=600)	11%	14%	75%	100%

[1/] Source: Survey of Bread Consumption Patterns in Seoul. ASI Market Research Inc. (Korea) August 1976. Table I-3 pp. 20-31.

[2/] Note: Heavy user: At least several times week.
Light user: Once a week or less often.

this percentage. In a 1971 study it was found that 83 percent of all Korean households rarely or never consumed bread which suggests a slight increase in usage in 1976 (10, pp. 53-54).

However, because of differences in data grouping, a direct comparison cannot be made.

The results of this survey confirm that bread users were more likely to be in college educated, upper class families, housewives' age 30 to 39 with a western style kitchen (Table 2). Even among the upper class households, however, more than 50 percent did not use bread. The main bread users in the family were found to be 5 to 14 year-old children.

The majority of bread users stated that they started eating bread relatively recently. About 60 percent of the heavy users said they have been eating bread for about four years or less, while two-thirds of the light users said the same. Children were most frequently cited as the members of the household most influential in starting to consume bread.

The survey of bread users conducted in the test market stores confirmed the basic characteristics described above. However, it was found that a much higher proportion of the sample obtained in this fashion was in professional, managerial or self employed categories (Table 3). This suggests that the sample of households obtained through the test stores was not entirely representative of the total population of bread users in the Seoul market.

Comparison with Soy-Fortified Bread Purchasers. Households observed to purchase SFB are compared with all bread using households in Table 4. Income was only available for one of the surveys so occupation of households head was used as a proxy for a more general classification of socio-economic

Table 3. Comparison of Bread Users from General Survey and Survey in Test Market Stores; by Occupation of Household Head.

Occupation of Household Head	Bread Using Households			
	General survey[1/]		Test store survey[2/]	
	number	percent	number	percent
Managerial and Professional	8	5.5	62	16.5
Self-employed and Middle Management	9	6.2	108	28.8
Clerical and Skilled	65	44.5	84	22.4
Sales Workers and Technicians	46	31.5	68	18.1
Unskilled	5	3.4	16	4.3
Unemployed and Others	13	8.9	37	9.9
Total	146	100.0	375	100.0

1/ Derived from Table I-3 of ASI report (1).

2/ Derived from Table II-14 of Whang report (6).

level. A strong correlation between occupation and income was found in those surveys where income was obtained. The occupational classifications in Table 4 are listed in order of descending income levels.

These data clearly indicate that households purchasing SFB are similar to all bread purchasing households in terms of occupation and related characteristics such as income. These data are not available separately for each pricing area, thus the effect of price on the demographic characteristics of SFB purchasing households cannot be evaluated. In the aggregate, there is no evidence to indicate that lower income groups purchased SFB more frequently or in greater volume than other types of bread. The effect of price will be examined later in connection with consumer evaluations and sales data.

Consumer Evaluations of Soy-Fortified Bread

Interviews with purchasers of SFB revealed the opinions held regarding various characteristics of the product. In general it was viewed as a reasonably priced, nutritious bread but of only poor to fair quality depending in part on SFB price and the type of bread normally purchased (6, p.67). The single most important factor in selecting bread was identified as taste.

While SFB was generally thought of as reasonably to inexpensively priced, these opinions were affected by the SFB pricing level. In those areas where SFB was sold at 140 and 180 won per loaf, there were proportionally fewer respondents referring to it as inexpensive (6, Table II-27).

Table 5 provides a useful overview of opinions held by respondents regarding the major quality characteristics of SFB. The majority of responses fall in the fair to poor range for all four characteristics. Flavor is

Table 4. Comparison of All Bread Purchasing Households with Households Purchasing Soy-Fortified Bread; by Occupation of Household Head.

Occupation of Household Head	All bread purchasers[1/]		SFB purchasers[2/]	
	number	percent	number	percent
Managerial and Professional	62	16.5	73	16.0
Self-employed and Middle Management	108	28.8	165	36.3
Clerical Workers	84	22.4	116	25.5
Sales Worker and Technician	68	18.1	51	11.2
Unskilled workers	16	4.3	8	1.8
Others	37	9.9	42	9.2
Total	375	100.0	455	100.0

[1/] Derived from Table II-14, Results of Survey I; Whang report (6).

[2/] Derived from Table II-14, Results of Survey II; Whang report (6).

Table 5. Opinions of Bread Users Regarding Selected Quality Characteristics of Soy-Fortified Bread. 1/

Respondent Opinion	Quality Characteristics			
	Flavor	Odor	Texture	Color
	- - - percent 2/ - - -			
Excellent	4.0	1.6	3.2	2.4
Good	21.1	12.6	19.4	29.1
Fair	25.9	46.2	32.4	40.5
Poor	47.0	38.5	42.5	26.7
Very Poor	2.0	1.2	2.4	1.2
Total	100.0	100.0	100.0	100.0

1/ Source: Table II - 29 of Whang report (6).

2/ Total observations for each column is 247.

particularly low with nearly half of the respondents racing it as poor or very poor. Taste panels carried out prior to the market test yielded opinions which were somewhat more positive than this (3). However close examination of the data provided in Sam Lip progress reports show that a significant number of consumers detected a "beany" or "fishy" flavor even in the best quality formulation that was tested. It seems likely that when people purchased the product in a normal market environment they were more willing to express dissatisfaction as reflected in the data in Table 5.

The ratings presented in Table 5 represent a composite of all SFB purchasers interviewed. Some were normal users of regular bread while others typically used milk bread which is considered by many as having better quality characteristics and is priced substantially higher than regular bread. When these two groups of people were separated out it was observed that the SFB fared worse against milk bread than it did against regular bread (6, Table A, II-7). Table 6 presents the distribution of ratings for those respondents who typically used regular bread. While, on average, the opinions regarding SFB are somewhat more favorable, the results are consistent with Table 5 and suggest a concern on the part of respondents regarding quality of SFB. Of the four characteristics, flavor received the lowest rating.

In view of the fact that "taste" was identified as the primary reason for buying a particular bread product this low rating for flavor takes on added significance. While persons interviewed were not asked to compare the quality a SFB directly with regular bread, the fact that ratings for flavor are consistantly lower than for any other product attribute suggests that flavor was perceived to be poorer for SFB than for regular bread.

The purchaser opinions regarding SFB shown in Table 5 were also separated into three groups according to the price charged for SFB (8). Some

Table 6. Opinions of "Regular" Bread Users Regarding Selected Quality Characteristics of Soy-Fortified Bread. 1/

Respondent Opinion	Quality Characteristics			
	Flavor	Odor	Texture	Color
	- - - percent 2/ - - -			
Excellent	3.0	0.0	3.0	4.0
Good	23.0	13.0	29.0	32.0
Fair	30.0	52.0	31.0	42.0
Poor	43.0	34.0	36.0	22.0
Very poor	1.0	1.0	1.0	0.0
Total	100.0	100.0	100.0	100.0

1/ Source: Table 26; Whang Second Progress Report, June 1977 (5).

2/ Total observations for each column is 100.

differences were found for flavor and odor. In each case the most negative ratings were found in the areas where SFB was priced the same as regular bread. In the two higher priced areas opinions regarding these two factors were less unfavorable. The reason for this difference is not clear since it would seem logical that persons paying a higher price would be more critical of the product. Apparently however, they were somewhat more willing to overlook taste problems. This may indicate that persons who were willing to buy the product at the higher price did so because of some other expected benefit such as nutritional value. When tabulated separately by household income it was observed that higher income households tended to give SFB less favorable ratings.

Although differences in ratings were observed among different subgroups of purchasers, the evaluations were low even in the best of the subgroups. In only one subgroup did more than a third of the respondents indicate that SFB was either good or excellent on any quality factor. In most cases less than 25 percent gave ratings that favorable.

Many of those who purchased SFB once did not continue to use the product. Forty-five percent bought it only once while about 20 percent purchased it more than four times (6, Table II-32). The reason most often cited for discontinuation of purchasing was "poor taste", with availability of product, lack of interest and harsh texture also being contributing factors but at a much lower level of response (6, Table II-33). Price or economy was identified as the problem by less than two percent of the respondents. A limited followup mail survey, conducted after the test market was completed and market wide distribution was underway, confirmed these responses but availability of product in the retail store had become the major limiting factor by that time (6, Table II-34).

Analysis of Sales Volume During Test Market

The ultimate reflection of success or failure is usually found in a measurement of the sales volume reached by the product. As indicated above, sales records were maintained during the test market and the marketwide distribution period which followed. An examination of these figures reveals some of the problems encountered in trying to successfully market SFB.

Results presented in Table 7 summarize the sales figures during the two month market test period. The relatively low sales levels for all bread in a typical store is evidence of the difficulty encountered in extending the product line by adding soy-fortified bread. With only 10 or 15 total loaves of bread per day being sold in a typical store there is not a great deal of opportunity for gaining additional shelf space for a product line extension. If the few larger supermarkets are excluded average sales levels are even lower than indicated in Table 7. This problem is one which should be considered early in the development of any new product development and marketing strategy.

During the market test soy-fortified bread sales appear to have declined over time. There was a general decline for most bread products from July to August but it was more severe for SFB (Table 7).

The influence of price on sales of SFB is dramatically illustrated. During the first month sales of soy-fortified bread in the stores where the price was ₩ 140 were little more than one-half the sales in ₩ 95 stores. A further reduction is seen in the ₩ 180 stores (Table 7). A similar relationship held true for the second month though sales in all three pricing areas declined, essentially disappearing in high price stores.

Table 7. Summary of Bread Sales per Store-day During Test Market Period for Selected Types of Bread, by Retail Price Level of SFB; Seoul, Korea, July-August 1976. 1/

Price of SFB	No. of stores	Month	Average sales per store-day				
			SFB 450g	Regular bread 3/ 800 gr.	Regular bread 3/ 400 gr.	Milk bread 3/ 450g	Total for all bread
			units 2/				
w 95	40	July	3.3	2.5	0.4	7.2	13.4
		August	2.8	2.2	0.5	8.1	13.5
w 140	22	July	1.8	2.1	0.5	8.9	13.3
		August	0.2	1.5	0.5	5.9	8.1
w 180	22	July	1.2	1.3	1.7	9.0	13.3
		August	0.0	1.8	1.1	7.0	9.9

1/ Source: Tables III-10 and III-11 of Whang report (6).

2/ A retail unit is defined as a loaf regardless of size.

3/ Prices for other bread products were:

Regular bread, 400 gr: w 95

Regular bread, 800 gr: w 190

Milk bread, 450 gr: w 200

It is important to note that when SFB was marketed at the same retail price as regular bread it outsold that bread. It is clear from these sales figures that the strongest sales item in the bread line was milk bread which was relatively high priced and identified generally by consumers as a high quality product.

These results are reinforced when examined on a share of total sales basis (Table 8). SFB achieved a share of nearly 25 percent during the first month when sold at a price equal to regular bread. Its share was much lower where priced higher. While the share dropped during the second month in the w 95 markets, its decline was much more rapid in the higher pricing areas.

Table 8. SFB Share of Total Units of Bread Sold by Pricing Area and Month[1/]

Pricing area	SFB share of total units sold	
	July	August
	percent	
w 95	24.7	20.6
w 140	13.5	2.9
w 180	9.2	0.2

[1/] Source: Tables III-12 and III-13, Whang report (6).

Discussion of Market Test Results

It is clear from the evidence presented above that the sales achieved during the test market were below the level needed for success except for the stores where SFB sold for the same price as regular bread. The lack of success of the product in the marketplace may be traced to three basic factors. High price perceived poor product quality and inadequate promotion and sales support. The price impact is demonstrated in the sales figures illustrating that SFB did sell when priced comparable to regular bread but did not sell at prices substantially higher.

Product quality as perceived by consumers apparently was a significant problem in markets where it was priced comparable with milk bread. It is evident that the overall quality of SFB was not competitive with milk bread and sales suffered accordingly. Consumer evaluations of SFB revealed a low rating of the product particularly in the area of flavor or taste which many had identified as the key factor in bread purchase decisions. These evaluations of product quality were quite low particularly in light of the fact that the earlier in-house taste panels conducted by Sam Lip did not reveal any significant problems. This difference is apparently due to the fact that the soy flour used was changed after the taste panels were completed to a local soy flour of inferior quality (7).

Inadequate promotion and sales efforts are identified by Whang (6, pp. 121-122) as contributing substantially to lack of success of the product in the test market. Because of the limited areas covered in the test market, mass media advertising was not used and promotion efforts focused on in-store materials. Considerable variation existed in the sales data from store to store and area to area which Whang traces to uneven promotion and sales efforts by company personnel, dealers, salesmen, and retailers.

Volume and margin were highest for milk bread so emphasis at all levels seemed to focus on this apparently more desirable product. If consumers had an interest in SFB this may have been stymied by the lack of availability in the retail store. Store owners and salesmen failed to keep the product on the shelf. In the ₩ 140 and ₩ 180 pricing areas, this progressive decline in SFB sales and in-store promotional efforts was noticeably increased when sales volumes did not materialize early.

While soy-fortified bread was able to compete with regular bread when priced comparably, many consumers compared it with milk bread which sold at a much higher price and was considered to be of much preferred quality. SFB could not compete at any price with milk bread which was by far the dominant item in the product line. Inadequate promotion and sales efforts as well as inherently low average sales volumes per store also contributed to the lack of success of SFB in the test market. It is true that regular bread also suffered from low sales levels, but Sam Lip was required to market this product because of a commitment to the government to offer a low priced bread for consumers.

Market-wide Distribution

The test market was terminated at the end of the second month. After considering the sales results of the market test and alternatives available, the Sam Lip Company decided to procede with a market wide introduction in November 1976 (7). At that time the full results of the consumer survey were not available and it was felt that the main factor in failure of the product at the intermediate price was lack of adequate promotion. They believed that the product could be sold successfully at a price higher than regular bread but lower than milk bread if a sound sales and promotion program was used in its support.

The Korean government operates a retail price control program which affects many staple food items including regular bread. The controlled price for regular bread was considered by the Company management to be well below that price which would cover all costs and provide a reasonable return on their investment. Since SFB was not subject to this price control program the Company was reluctant to price it at the same level as regular bread. Therefore the SFB price was set at ₩ 160 per loaf even though at the time this was considerably above the price of regular bread. There was hope that the government would permit an increase in the price of regular bread to reflect changing costs thus resulting in a new price level which would be comparable to that for SFB (6, pp. 123-126; 7, pp. 58-62). A more detailed and potentially more effective promotion and sales program including mass media advertising was planned by the Company (6, pp. 128-130).

The results of the market-wide introduction of SFB are clearly summarized in Table 9. These data reflect the share for selected items of total unit sales of the Company during the period SFB was distributed. SFB maintained a share of 11 to 12 percent during the first two full months of distribution but began to decline in the third month and by the sixth month sales were down to slightly more than one percent. The decline in share in the third full month coincides with a discontinuation of promotion advertising programs. During this time total sales of bread were increasing for the Company due almost entirely to the increase in milk bread volume (6, Table III-17). By June 1977 milk bread unit sales exceeded the total of SFB and regular bread by more than five times. When analyzed by area of the market the data illustrates a generally uniform decline (6, Tables III-29, 30 & 31).

Table 9. Unit Sales of Selected Bread Items as Share of Total Units of Bread Sold by Sam Lip Co., December 1976 - June 1977. 1/

Month	Share of total units		
	SFB 2/	Regular 3/	Milk Bread 4/
	- - - percent - - -		
1976 Nov. 5/	14.2	29.5	56.3
Dec.	11.0	27.8	61.2
1977 Jan. 6/	11.9	17.1	71.0
Feb.	9.0	18.0	73.0
March	5.5	18.1	76.4
April	3.7	17.6	78.7
May	1.2	17.8	81.0
June	0.1	16.4	83.5

1/ Source: Table III-17 of Whamg report (6).

2/ SFB represents one product, 450 gram loaf of soy-fortified bread priced at w 160.

3/ Regular represents a total units of both units of 400 gram and 800 gram loaves priced at w 95 and w 190, respectively prior to Jan. 17, 1977, and w 105 and w 210 after that date.

4/ Milk bread represents total units of both 200 gram and 450 gram loaves priced at w 100 and w 200, respectively.

5/ Market test launched during November. Period included last nine days of the month.

6/ Promotion and advertising efforts were discontinued during January when budgeted funds had been expended.

The Sam Lip Company made some "minor technical improvements" prior to starting market-wide distribution but no major changes in formulation in part because of no alternative supplies of soy flour were available (7, pp. 59-60). Limited results from a mail survey conducted after market-wide introduction indicate that the product was rated better on all quality factors when compared with earlier test market results (6, Table II-30). In contrast to the earlier survey results where flavor was rated below other quality attributes, flavor was rated no differently than other factors. Because of the limited nature of response to this survey it is not clear that these results are significant.

The evidence indicates that SFB was not considered by the Company to be a high priority item. Its sales potential was not nearly as good as that for milk bread. Consumers continued to view SFB as competing pricewise with milk bread and apparently considered it as a lesser quality product. Bread consumption is concentrated among high income groups and price is of less importance than taste or other quality characteristics. SFB was unable to develop any sustained consumer loyalty or following especially without the continuation of promotion and advertising. Whang observed that in-store promotional materials were ineffectively utilized and in many cases wasted (6, p. 167). He also observed that the advertising budget was inadequate and termination of advertising so soon after market-wide introduction contributed to declining sales. Sam Lip management, dealers, salesmen and retailers all focused their limited resources on the more readily accepted milk bread.

CONCLUSIONS

Conclusions can be drawn at several levels from this study. Some conclusions are appropriate relating to the overall case-study goal and objectives. Others relate more specifically to the implications for introducing a soy-fortified bread in Korea or another country with similar economic conditions and consumption characteristics. These are presented separately below.

General Conclusions

1. The results of the technical aspects of product development and manufacturing indicate that a fortified bread judged to be a good physical quality by an expert panel can be made on a continuing commercial basis. This can be done under varying conditions with respect to quality or strength (protein content) of the flour. Consumer evaluations, however, suggest that flavor problems did exist with the SFB that was test marketed. This may be traced to the use of locally available soy flour which was of a lower quality than the imported soy flour used in original consumer taste studies. The results at this level also show that protein fortification technology was feasible and applicable for the commercial manufacture of soy fortified bread from a technological standpoint and at a production cost essentially the same as that for regular unfortified bread.
2. Results from the marketing phase indicate that when priced equal to the lowest priced competing bread product, soy-fortified bread

can achieve a level of sales sufficient to warrent continued production and marketing. When priced substantially above regular bread, SFB cannot obtain a significant share of the market without a sustained advertising and promotion program. Consistent good quality product and effective continuing promotion and sales programs are of increasing importance to marketing success as the price of soy-fortified bread is raised relative to competing bread products.

3. This study provided no evidence to indicate that successful marketing of a fortified bread will contribute to resolving nutritional deficiency problems if the at-risk population is not among the regular consumers of bread. The fortified bread purchasers were generally of the same group that were already consuming bread products and in this situation were not representative of the nutritionally needy segment of the population.
4. Many of the marketing research procedures used in this study are not commonly employed in many developing economies. These procedures including both consumer surveys and in-store experimental designs can be successfully employed in the market test of such a product. Additional monitoring is necessary, however, because of insufficient familiarity among management personnel at all levels of the systems with the techniques and uses of marketing research. The lack of continuing data series relating to characteristics of consuming households, the level or frequency of product use and the low level individual firm sales contributes to problems encountered in this type of study in a developing country.

Conclusions Specific to This Market Environment

1. Bread consumption in Korea is increasing but is still concentrated among households with higher incomes, higher education and access to western style kitchens. Taste was found to be the single most important factor in bread purchase decisions.
2. The soy-fortified bread outsold regular bread when priced on a comparable level but when priced substantially higher, the fortified bread was not able to achieve a significant level of consumer acceptance and sales declined rapidly.
3. The lack of strong consumer acceptance was attributed to two major sources: a) low consumer opinion of bread quality particularly flavor or taste, and b) insufficent and unevenly distributed sales and promotion efforts.
4. Flavor or taste of SFB was rated particularly low by consumers during the market test. Approximately one-half of all respondents rated the taste of SFB as poor or very poor. This was lower than for any other quality factor.
5. Motivation of dealers, salesmen and retailers was not adequate to produce a consistent merchandising effort in the stores. This is the result in part of the fact that bread turnover in a typical store is quite low and the introduction of a new bread product was viewed as competitive with existing products. Retailers were reluctant to give up additional shelf space for a product which could not clearly demonstrate a high turnover. This problem was greater when SFB was priced closer to milk bread than to regular bread.

6. Government retail price control programs significantly influenced the manufacturer's pricing decisions. The price for soy-fortified bread was set considerably higher than regular bread because the regular bread price was considered by the Company to be held at an artificially low level by government control. This relatively high price contributed to the failure to gain a significant share of the market.
7. The Company's total bread sales were expanded during the market-wide distribution phase primarily due to increasing success with milk bread, a product which was more expensive but preferred by consumers. In view of this success and other successful new products it was difficult for the Company to justify using limited manufacturing capacity and scarce managerial resources in support of the soy-fortified bread product which was viewed as having a lower profit potential. For these reasons relatively little attention was given to sales and promotion efforts or support in terms of production scheduling for the fortified bread product.

The concept of introducing a fortified bread product has been demonstrated in the project to be technically feasible. It seems possible that such a product can be produced and marketed under favorable market conditions where the price is the same as similar bread products and it is well supported by a promotion program. Its success is highly dependent on local marketing conditions, pricing, product quality, advertising, sales efforts and the motivation of firms involved. SFB can have a significant effect on nutritionally deficient populations only if bread consumption is already established sufficiently among that group or if such bread can otherwise be made to reach the target group, as for example through food stamps.

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